

REMARKS

After entry of this response, Claims 32-59 remain pending in the present application. Applicant respectfully requests reconsideration by the Examiner in light of the following remarks.

The Examiner has rejected Claims 32-35, 41-44 and 51-54 under 35 U.S.C. 102(e) as anticipated by Park et al. (U.S. 2003/0153954, hereinafter "Park").

In order for a reference to anticipate a claim, the reference must teach each and every element of the claim. Contrary to the Examiner's assertions, the Park reference fails to teach or suggest, among other things, "detecting whether an autonomous intrinsic signal component is present within the sensed ventricular signal within the heart after delivering the pacing pulse", as stated, for example, in Claim 1. The detection of an autonomous intrinsic signal component within the sensed ventricular signal indicates that intrinsic conduction is successful in the heart. If an autonomous intrinsic signal component is identified, then the AV interval in the next scheduled cycle is extended. Extending the AV interval allows autonomous intrinsic ventricular activity to occur undisturbed. This promotes the ability for autonomous intrinsic conduction to emerge and reduces unnecessary ventricular pacing.

The Examiner asserts that Park discloses "detecting intrinsic ventricular activity within the sensed ventricular signal within the heart after delivering the pacing pulse", and cites paragraphs 22 and 24 of the Park reference for support. However, the notion that sensing intrinsic cardiac electrical phenomena based on the monitored signals includes detecting whether an autonomous intrinsic signal component is present within the sensed ventricular signal is not an appropriate reading of the Park reference.

In a given patient, autonomous intrinsic ventricular activity may or may not be present within the heart. Ideally and under normal circumstances, the pacemaker would only deliver a ventricular pacing pulse when autonomous

intrinsic ventricular activity is not present. The Park reference fails to teach or suggest detecting whether an autonomous intrinsic signal component is present within the sensed ventricular signal. As this component is not detected, it cannot form the basis of a subsequent pacing delay interval and is accordingly, not taught by the reference. By identifying the presence of autonomous intrinsic ventricular activity within the sensed ventricular signal following a delivered ventricular pacing pulse, implementations of the present invention may extend a timing interval for a subsequent scheduled cardiac cycle. This promotes the ability for autonomous intrinsic conduction to emerge.

Similarly, Park fails to teach a device comprising a processor that “detects whether an autonomous intrinsic signal component is present within the sensed ventricular signal within the heart after delivering the ventricular pacing pulse” of Claim 41; or a computer-readable medium comprising instructions to cause a processor to “detect whether an autonomous intrinsic signal component is present within the sensed ventricular signal within the heart after delivering the pacing pulse” of Claim 51.

Consequently, Claims 32-35, 41-44 and 51-54 are not anticipated by the Park reference and the rejection under 35 U.S.C. 102(e) must be withdrawn.

In addition, the Examiner has rejected claims 32, 33, 35-42, 44-52, and 54-59 under 35 U.S.C. 102(e) as anticipated by Van Dam et al., U.S. Patent No. 6,836,682, (hereinafter “Van Dam”). The Examiner’s rejection with regard to the Van Dam reference is based on Figure 6. In that Figure, the Examiner asserts that intrinsic ventricular activity is detected at block 215. Applicant respectfully disagrees.

At step 200, Van Dam teaches “a Vsense represents a detected R-wave, and is determined in a known manner.” (col 11, lines 18-20) The routine starts at a Vevent, which may be a sense or pace. The Vpace is an evoked R-wave resulting from a pacing pulse. If it is determined that the Vevent was a paced event, the routine proceeds to measure the QT interval. However, Van Dam does not teach or suggest determining whether an autonomous intrinsic signal

component is present within the sensed ventricular signal within the heart after delivering the pacing pulse. To the contrary, Column 11, lines 54-56 of the Van Dam reference states that at block 215 of Figure 6, a measurement of the QT interval (stim-T) is made "in the standard way." As an illustration of the QT interval measurement, Figure 8 (col 12, lines 38-57) of the Van Dam reference shows a flow diagram for measuring QT interval. Van Dam simply teaches that the sensed signal, without a further determination of whether or not there is an autonomous intrinsic component, is used to obtain the QT interval. Therefore, the teaching in the Van Dam reference does not permit the Examiner's assertion that the reference discloses providing a ventricular pace and then evaluating whether there is an autonomous intrinsic signal component to the resultant ventricular depolarization.

Accordingly, Claims 32, 33, 35-42, 44-52, and 54-59 are not anticipated by the Van Dam reference and the rejection under 35 U.S.C. 102(e) must be withdrawn.

In view of the foregoing, it is submitted that this application is in condition for allowance. Favorable consideration and prompt allowance of the application are respectfully requested.

Should any issues remain outstanding, the Examiner is urged to telephone the undersigned to expedite prosecution.

Respectfully submitted,

September 18, 2007
Date

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